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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,415	06/13/2006	Ties Van Bommel	NL031459	6375
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EXAMINER				
BOWMAN, ANDREW J				
ART UNIT		PAPER NUMBER		
1792				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,415

Applicant(s)

VAN BOMMEL ET AL.

Examiner

ANDREW BOWMAN

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-14 remain pending in the current application.

Response to Arguments

Regarding the allegation by the applicant that Lefeux teaches away from increasing crosslink density, the applicant merely recites a value from the specification of the application that is in no way a measure of crosslink density, and then states that the value somehow teaches away from optimization of the amount of crosslinking. This allegation is in no way backed by scientific facts or reasoning and appears to be entirely conjecture, as no real explanation of the argument is given in a way as to which can could determine in what way the reference teaches away. Regarding motivation to perform a crosslinking density, the examiner stands by his reasoning provided in the previous action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lefaux et al. (Hydrogel Contact Deposition of Polymeric Multilayers, SPE Proceedings on Hydrogel Contact Printing, 2001, pg. 2 as presented).
 - a. Regarding claims 1-3, 5, and 6, Lefaux shows that it is well-known to create microprinting stamps by the copolymerization of hydroxyethylacrylate and ethylene glycol dimethacrylate (EGDMA) (crosslinker) (pg. 2, two sentence). Lefaux fails to teach the use of polyethylene glycol dimethacrylate (PEGMDA) as the crosslinker and is silent regarding the crosslink density. However, it is the position of the examiner that it is well-known that the primary difference between EGDMA and PEGMDA is the length of the polymerized or polymerizable chain (1 unit for EDGMA and more than one unit for PEGDMA). They both chemically react with hydroxyethylacrylate in exactly the same way, by the same chemical reactions. The chain length of the polymer directly affects the stiffness and

rigidity of the finished, making it more or less capable of being swelled, which would affect the ability of the stamp to transfer and deposit coating materials. Therefore, it would be obvious for one of ordinary skill in the art to optimize the chain length of the ethylene glycol dimethacrylate molecule used in order to modify the stiffness and rigidity of the stamp produced. Further, in the absence of criticality of the specific polymer concentration or crosslink density required by the claims, it would also be obvious for one of ordinary skill in the art optimize the amount of polymer molecule used in the production of the stamp, in order to optimize the attained crosslinking density of the stamp, which would in turn also affect the stiffness and rigidity of the finished stamp, which in turn would make the stamp more or less capable of being swelled, which would effect the ability of the stamp to transfer and deposit coating materials.

- b. Regarding claim 4, it is the position of the examiner that based on the method used to produce the stamp of Lefaux, that it would be self-supporting.
5. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lefaux et al. (Hydrogel Contact Deposition of Polymeric Multilayers, SPE Proceedings on Hydrogel Contact Printing, 2001, pg. 2 as presented) in view of Turner et al. US5948621.

- c. Regarding claim 8, the teachings of Lefaux are as shown above. Lefaux fails to teach the transfer of biomolecules using the stamp. However, Turner shows that it is well-known to use hydrogel micro-printing stamps to transfer biomolecules onto substrates (abstract). Further Lefaux described the

methodology for using his stamp as swelling it in a PAA or PAH solution (pg.2 paragraph 1) which contains water (last paragraph, pg. 1) and loading the material to be transferred and transferring the loaded material (under Discrete-Contact printing, pg. 2). One of ordinary skill in the art would be motivated to use the stamp and methodology of Lefaux to transfer the biomaterials of Turner because Turner shows that these types of stamps are suitable for this form of transfer and would be expected to function with a high degree of success.

d. Regarding claim 12, the teachings of Lefaux in view of Turner are as shown above. Lefaux in view of Turner fails to teach the use of buffer for rinsing. However it is the position of the examiner that the use of rinsing with buffers is generally known in all arts, as a buffer solution is by definition non-reactive and capable of maintaining a set pH, by definition. The primary uses of buffers are as pH balancers and non-reactive agents in cleaning processes. Therefore the use of a buffer for rinsing the stamps would be considered obvious. Motivation to perform the rinsing would be provided merely for the purpose of not transferring any material that was not attached firmly to the pattern, thereby transferring a more accurate replica of the pattern.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lefaux et al. (Hydrogel Contact Deposition of Polymeric Multilayers, SPE Proceedings on Hydrogel Contact Printing, 2001, pg. 2 as presented) in view of Weissman (US3506749).

- e. Regarding claim 7, the teachings of Lefaux are as shown above. Lefaux fails to teach the general molding features used to create the stamps. However, Weissman shows that the general process for making stamps is well-known. The glass and spacers of the current application are used as a mold, just as the mold of Weissman is used to transfer a pattern from a master to the medium which is used to form the stamp. Then the stamp would be taken off of the master in a peeling motion. Therefore it is the position of the examiner that one of ordinary skill in the art would be motivated to make the stamp of Lefaux by the stamp making method of Weissman because the method of Weissman is shown to be an effective method of making stamps and would be expected to be suitable for making the stamps of Lefaux as well. It should be noted that Weissman does not specifically teach the use of glass. However, it is the position of the examiner that it is generally known in the art of mold making to use glass as a substrate for molding, because glass is smooth and allows for ease of removal of molded parts and is well known generally to be used for such purposes.
7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lefaux et al. (Hydrogel Contact Deposition of Polymeric Multilayers, SPE Proceedings on Hydrogel Contact Printing, 2001, pg. 2 as presented) in view of Weissman (US3506749) and further in view of Pfeiffer et al. (Polymer Stamps for nanoimprinting, Microelectronic Engineering, 2002, pp. 393-398)

- f. Regarding claim 9, the teachings of Lefaux in view of Weissman are as shown above. Lefaux in view of Weissman fails to teach the use of a chain transfer agent. However, Pfeiffer shows that chain transfer reagents are commonly used in the manufacture of molecular stamps wherein polymerization reactions occur. It is the position of the examiner that one of ordinary skill in the art would be motivated to use the chain transfer reagent of Pfeiffer in the stamp making method of Lefaux in view of Weissman, because Pfeiffer shows that chain transfer agents are suitable for these types of reactions wherein the reaction is used for the purpose of making a stamper.
8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lefaux et al. (Hydrogel Contact Deposition of Polymeric Multilayers, SPE Proceedings on Hydrogel Contact Printing, 2001, pg. 2 as presented) in view of Turner et al. (US5948621) and further in view of Martin et al. (Fabrication and Application of Hydrogel Stampers for Physiorptive Micro-contact Printing, Langmuir, 2000, pp. 9944-9946)
- g. Regarding claims 13 and 14, the teachings of Lefaux in view of Turner are as shown above. Lefaux in view of Turner fails to teach the use of drying with nitrogen. However, Martin shows that it is well-known to dry stamps with a nitrogen stream prior to bringing the stamp in contact with the surface of the substrate (p 9946, column 2). Therefore it is the position of the examiner that one of ordinary skill in the art would be motivated to perform the drying step of Martin, because it is well-known to be a step that is well-suited for the molecular

stamping process for improving the quality of the stamp that is produced (the print).

Allowable Subject Matter

9. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

h. It is the position of the examiner that the components of the claims are not generally known in combination in the formation of molecular stamps.

i. The most pertinent prior art (Lefaux et al., as listed above) teach the general manufacture and use of hydrogel stamps. However the reference fails to the use of either of the primary component listed in the claims.

ii. Another prior art (US5948621) teach the general manufacture and use of hydrogel stamps. However the reference fails to the use of either of the primary component listed in the claims.

iii. Another prior art (US3506749) teaches a general stamp producing method, but the stamps are not of the type used in the current application nor are the components of the claims used.

- iv. Another prior art (Pfeiffer et al., as listed above) teaches the use of polymer stamps for nanoimprinting. However the reference fails to teach the use of the components listed in the claims.
- v. Another prior art (Martin et al., as listed above) teaches the fabrication of hydrogel stampers. However, the reference fails to teach the use of the components listed in the claims.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **ANDREW BOWMAN** whose telephone number is (571)270-5342. The examiner can normally be reached on Monday through Friday (7:30 to 5:00)EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Barr/
Supervisory Patent Examiner, Art Unit 1792

Andrew J Bowman
Examiner
Art Unit 1792
